PATENT APPLICATION
Docket No: 14321.86

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of		)
	Tsutomu Kito et al.	)
Serial No.:	10/584,820	) Art Unit 2874
Filing Date:	June 27, 2006	)
Confirmation No.:	5579	)
For:	OPTICAL FUNCTIONAL CIRCUIT	)

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. § 1.97

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449 which contains a list of all patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). While no representation is made that these references may be "prior art" within the meaning of that term under 35 U.S.C. §§ 102 or 103, the enclosed listed references are disclosed so as to fully comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the enclosed art is the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

In accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each of the listed references or relevant portion thereof that is not a US patent document is also enclosed.

Statement of Relevance of References Listed
Unaccompanied by English Translation
Under 37 CFR § 1.98(a)(3)

In accordance with 37 CFR § 1.98(a)(3), the following concise explanation of the relevance of each listed reference that is not in the English language and unaccompanied by a translation into English is provided.

Japanese Publication No. JP 60-202553: PURPOSE: To obtain a miniature optical head which can be easily controlled and to prevent a change of a spot form on a medium, by setting a collimator lens, divider and a grating coupler on a plane type optical waveguide path and setting an optical circuit on a movable actuator. CONSTITUTION: A waveguide path 22 is formed by diffusing Ti on a substrate 21 of lithium niobic acid in 3mum thickness, and a collimator lens 24 uses a circular and hollow lens on the path 22. A divider 25 has an oblique groove on the path 22 and has a part different in diffractive index from the path 22. A semiconductor laser 23 is connected to the end face of the path 22, and the output light from a grating coupler 26 is condensed on a recording medium in the form of a spot 27. While the reflected light is led into the path 22 again by the coupler 26, and a part of this reflected light is radiated from the end face of the divider 25 and received by a detector 28. Thus the information on a recording medium is obtained. Then an optical circuit 21 is set on an actuator 31 which can move in the depth-of-focus direction of the spot 27 and to the direction orthogonal to the track of the recording medium and can be moved in accordance with the position variance of the recording medium in a thin and light-weight structure.

Japanese Publication No. JP 04-316005: PURPOSE: To couple the end face of a light guide, formed on the light guide substrate, with the end face of an optical fiber with high accuracy without aligning their optical axes. CONSTITUTION: The bottom face and/or flank of a substrate material is selected as a reference face. The substrate material is divided into a light substrate material and, for example, a couple of substrate materials for optical fiber arraying. The light guide 6 is formed on the surface of the light guide substrate material by using the reference face after the division as a position reference to obtain the light guide substrate 14. A V groove 5 is formed in the surface of each substrate material for optical fiber arraying by using the reference face after the division as the position reference to form the couple of substrates 13A and 13B for optical fiber arraying. An optical fiber 7 is put in each V grooves 5. The end faces 9 and 19 formed by driving the substrate material are coupled together again. At this time, the end face of the light guide 6 and the end face of the optical fiber 7 are coupled with each other.

Japanese Publication No. JP 05-011135: PURPOSE: To provide the method for the connection between the optical fiber and optical waveguide path which can position the optical waveguide path and optical fiber efficiently with high accuracy. CONSTITUTION: A clad layer 11 and a core layer 12 are formed in order on a substrate 10 and the core layer 12 is patterned by photolithography to form a waveguide circuit 18 which correspond to plural optical fibers arrayed successively at specific intervals and a 1st marker 19 which is positioned at a specific distance from the waveguide circuit 18; and a clad layer 11 is formed in an area except the 1st marker 19 to manufacture the optical waveguide path 1, and the optical fibers are mounted in optical fiber holes of a base body where the optical fiber holes where the optical fibers are

inserted and a 2nd marker 5 to be positioned at the 1st marker 19 are formed to manufacture an optical connector 8. The 1st marker 19 and 2nd marker 5 are positioned to connect the respective optical fibers to the waveguide circuit 18.

Japanese Publication No. JP 08-190028: PURPOSE: To make it possible to form many waveguide elements of a larger number of ports on a wafer and to suppress a manufacturing cost by forming these elements to a trapezoidal shape. CONSTITUTION: The waveguide element 11 is provided with optical circuits 12 which are many waveguides by branching of plural waveguides from the upper side to the lower side direction and the waveguides 13, 14 for alignment in the regions exclusive of the optical circuits 12 on a trapezoidal substrate. The respective waveguides have light input/output ends (ports) at the end faces of the waveguide element 11. The N port side 15 of the smaller number of the ports is on the upper side of the trapezoidal shape and the width at its end face is formed narrow. The M port side 16 of the larger number of the ports is on the lower side of the trapezoidal shape and the width at its end face is formed wide. A fiber array 18 is connected to the N port side and a fiber array 17 to the M port side 16, respectively. The waveguide elements 22 to 26 are so formed that their directions vary from each other. The elements are formed on the wafer substrate 21 in such a manner that the upper sides and the lower sides of the trapezoidal shape are straightly aligned.

Japanese Publication No. JP 08-313744: PURPOSE: To make it possible to connect an optical waveguide group having the prescribed functions of optical circuits and the optical fibers of optical fiber array parts corresponding to this optical waveguide group by simultaneously aligning their optical axes when the independent optical waveguides of a simple structure of the optical waveguide circuits and the optical fibers of the optical fiber array parts corresponding to these optical waveguides are connected by aligning their centers. CONSTITUTION: These optical circuit parts are formed by connecting the input and output ends of the optical waveguide circuits 9 which are composed of at least >=3 pieces of the optical waveguide groups and have the prescribed functions and the optical fiber array parts 13, 17 arranged with the plural optical fibers by aligning their centers. The optical waveguide circuits 9 have the independent optical waveguides 10 not concerned with the functions of the optical waveguide 11 groups having the prescribed functions in addition to these optical waveguide groups. The optical waveguide circuits 9 and the optical fiber array parts 13, 17 are connected by aligning the centers of the independent optical waveguides 10 and the optical fibers 14, 18 of the optical fiber array parts 13, 17 corresponding to the optical waveguides 10.

Japanese Publication No. JP 10-186184: PROBLEM TO BE SOLVED: To provide an optical bus in which the high speed of an optical transmission is attained and a signal processor adopting the bus. SOLUTION: Plural signal light input and output parts 33 to carry out incidences or the emittings of signal lights are provided at end faces of data buses of an optical transmission layer 31 and optical scattering bodies 34 whose material are made of polystyrene which diffuse signal lights made incident on them from the signal light input and output parts 33 into the whole of the light transmission layer 31 are made to be scattered in the inside of the layer 31. Moreover, a light absorbing layer 35 made of carbonaceous black inorganic pigment which absorb signal lights heading the inside of the optical transmission layer 31 to the end faces of the optical transmission layer 31 is formed so as to be along parts other than the signal light input and output parts 33 of the optical transmission layer 31.

Japanese Publication No. JP 10-332966: PROBLEM TO BE SOLVED: To provide an optical device with a high quenching ratio by arranging an outputting optical waveguide on a position shifted from extension of an inputting optical waveguide. SOLUTION: The inputting optical waveguide (incident side spot size conversion part) II, an optical gate part (optical function part) III and the outputting optical waveguide (outgoing side spot size conversion part) IV are arranged in an S shape as a whole. Then, the inputting optical waveguide II and the outputting optical waveguide IV, that is, an external inputting SMF I and an external outputting SMF V aren't arranged on the same straight line. Since almost leakage light occurring in the incident side spot size conversion part II are advanced while expanding in front, they hardly become to be coupled with the external outputting SMF V. Then, for improving the quenching ratio, distance in the direction perpendicular to the optical axes of the inputted optical waveguide II and the outputting optical waveguide IV is preferred to be larger within the range of being allowed on designing the device, and at least the matter that both aren't overlapped in a virtual position on the extension of them is required.

Japanese Publication No. JP 2002-031731: PROBLEM TO BE SOLVED: To solve such problems that the conventional hybrid integrated circuit can not satisfy a low loss optical waveguide function, an optical bench function and a high frequency electric wiring function. SOLUTION: The circuit includes an optical waveguide section 92 which is formed on a substrate 1 and has at least one signal waveguide 92a and at least one monitor optical waveguide 92b, an optical element mounting section which is provided in a gap formed at the tip section or in the middle of the section 92 and an optical functional element which has signal and monitor ports that are used for optical couplings with the waveguides 92a and 92b of the section 92. In the above constitution, the optical functional element is mounted on the optical element mounting section in a state where the waveguide 92a and the signal ports are optically coupled and the waveguide 92b and the monitor ports are optically coupled.

Japanese Publication No. JP 2004-046021: PROBLEM TO BE SOLVED: To provide an optical waveguide device which can prevent adverse influence of stray light emitted from a core without increasing manufacturing processes nor lowering manufacturing efficiency. SOLUTION: In a lower clad layer 13, an optical coupler 18 made of the same material as that of cores 15 and 16 is provided using the same manufacturing process. This optical coupler 18 acquires the stray light emitted from the core 15 and guides the stray light in an arbitrary direction to prevent the light from being coupled with the cores 15 and 16 again.

PCT Publication No. WO 2004/059354: An input port and an output port are provided to a wave transmission medium. Field distribution I of a propagated light (forward propagated light) that has entered through the input port is determined by numerical calculation. Field distribution 2 of a phase conjugate light (reversely propagated light) is also determined by numerical calculation. The phase conjugate light is such that the output field expected when an optical signal that has entered through the input port is outputted from the output port is propagated reversely from the output port. From field distributions I, 2, the spatial distribution of the index of refraction in a medium can be so determined that there is no phase difference between the propagated light and the reversely propagated light at each point (x, z).

Non-Prior Art Document

Attached for the Examiner's consideration is a copy of an official notice of rejection issued in Japanese Patent Application No. 2006-523769 and which was mailed on June 22, 2007. The Japanese '769 application is a foreign counterpart of the present application.

Dated this 24th day of January 2008.

Respectfully submitted,

/Dana L. Tangren/ Reg # 37246
DANA L. TANGREN

Attorney for Applicant
Registration No. 37,246
Customer No. 022913
Telephone No. 801.533.9800

DLT:dfw
W:\14321\86\DFW0000026192V001.DOC